

Korean J Urol. 2014 Aug; 55(8): 536–541.

Published online 2014 Aug 8. doi: [10.4111/kju.2014.55.8.536](https://doi.org/10.4111/kju.2014.55.8.536)

PMCID: PMC4131083

Are Clinical, Laboratory, and Imaging Markers Suitable Predictors of Vesicoureteral Reflux in Children With Their First Febrile Urinary Tract Infection?

[Abolfazl Mahyar](#),[✉] [Parviz Ayazi](#), [Shiva Mavadati](#), [Sonia Oveisi](#),¹ [Morteza Habibi](#), and [Shiva Esmaeily](#)²

Abstract

Purpose

This study was conducted to determine the predictive value of clinical, laboratory, and imaging variables for the diagnosis of vesicoureteral reflux in children with their first febrile urinary tract infection.

Materials and Methods

One hundred fifty-three children with their first febrile urinary tract infection were divided into two groups according to the results of voiding cystourethrography: 60 children with vesicoureteral reflux and 93 children without. The sensitivity, specificity, positive and negative predictive value, likelihood ratio (positive and negative), and accuracy of the clinical, laboratory, and imaging variables for the diagnosis of vesicoureteral reflux were determined.

Results

Of the 153 children with febrile urinary tract infection, 60 patients (39.2%) had vesicoureteral reflux. There were significant differences between the two groups regarding fever >38°C, suprapubic pain, C-reactive protein quantitative level, number of red blood cells in the urine, and results of renal ultrasound and dimercaptosuccinic acid renal scanning ($p < 0.05$). There were significant positive correlations between fever >38.2°C and dimercaptosuccinic acid renal scanning and vesicoureteral reflux. Also, there were significant positive correlations between the erythrocyte sedimentation rate, positive urinary nitrite test, hyaline cast, and renal ultrasound and high-grade vesicoureteral reflux.

Conclusions

This study revealed fever >38.2°C and dimercaptosuccinic acid renal scanning as the best predictive markers for vesicoureteral reflux in children with their first febrile urinary tract infection. In addition, erythrocyte sedimentation rate, positive urinary nitrite test, hyaline cast, and renal ultrasound are the best predictive markers for high-grade vesicoureteral reflux.

Keywords: ^{99m}Tc -Dimercaptosuccinic acid scan, Sedimentation rate, Urinary tract infections, Vesicoureteral reflux

